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REMARKS

By this amendment, the limitations of claim 4 have been moved into claim 1, and the dependency of claim 5 has been changed from claim 4 to claim 1. Claim 4 has been canceled.

Claims 2-5 and 7-10 were rejected under 35 U.S.C. §103(a) over Islam et al. ('540) and further in view of Murnick ('825). It is Applicant's position that the Examiner has failed to establish *prima facie* obviousness, since no meaningful factual evidence is provided in support of the Examiner's proposed combinations or arguments. On page 4 of the Office Action, the Examiner states that:

"It would have been obvious to one of ordinary skill in the art to modify Islam in view of the teaching of Islam and provide a cooling laser beam to cool the melted deposited metal from the coaxial powder feed head to reduce thermal shock to a hard material being deposited or to a material which undergoes a cooling rate transformation."

First, the Examiner appears to be adding the teachings of one reference to the teachings of itself (namely, Islam), and second, there is no support for the conclusion that this would "reduce thermal shock to a hard material being deposited or to a material which undergoes a cooling transformation." Accordingly, *prima facie* obviousness has not been established. Further, on page 4 of the Office Action, the Examiner argues that :

"It would have been obvious to one of ordinary skill in the art to modify Islam in view of the teaching of Islam and provide a cooling laser beam which does not melt the material but instead controls the cooling rate to prevent shock and control the stress in the deposited material."

Again, there is no teaching or suggestion that such results would flow from the Examiner's conclusion.

On page 4 of the Office Action, the Examiner concedes that:

"Islam however fails to specifically teach generating multiple beams from a single laser in which at least one is used for melting and another is used for cooling, control of the intensity by defocusing a beam to control cooling, use of multiple beams to control cooling."

However, on page 5 of the Office Action, the Examiner concludes that:

"It would have been obvious to one of ordinary skill in the art to modify Islam in view of Murnick to use multiple beams or defocus the beam to reduce stress.

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Further it would have been obvious to one of ordinary skill in the art to modify Islam in view of Murnick to use the same laser to both deposit the material and to reduce the stress to reduce the required number of lasers."

However, the Examiner provides no teaching or suggestion from the prior art in support of these conclusions, such that *prima facie* obviousness has not been established.

On page 6 of the Office Action, the Examiner concedes that:

"Beaman however does not specifically disclose that a metal powder is being used, but does teach the use of metal powders."

But argues that:

"It would have been obvious to one of ordinary skill in the art to modify Beaman in view of Beaman's teaching and use a metal powder so that an accurately built metal object could be formed."

The justification for the rejection on the grounds that "an accurately built metal object could be formed," is so broad and nebulous, that it applies to just about any combination of patents in the field of additive manufacturing. Accordingly, such a distinction provides no substantive foundation for an obviousness rejection. The Examiner further argues that:

"It would have been obvious to one of ordinary skill in the art to modify Beaman in view of Sterett and use a laser for annealing so that the object could be immediately used."

However, how does the Examiner know that the modification of Beaman in view of Sterett would result in an object that "could be immediately used."? What does "immediately used" mean?

On page 7, the Examiner states that:

"Beaman however does not specifically disclose that a metal powder is being used, but does teach the use of metal powders."

Applicant does not really understand what the Examiner means, since the statement appears to be self-contradictory. Nevertheless, the Examiner argues that:

"It would have been obvious to one of ordinary skill in the art to modify Beaman in view of Beaman's teaching and use a meal powder so that an accurately built metal object could be formed."

Again, however, it is Applicant's position that the Examiner has no way of knowing that an object could

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be accurately built or immediately used. Thus, the argument:

"It would have been obvious to one of ordinary skill in the art to modify Beaman in view of Sterett and use a laser for annealing so that the object could be immediately used and not require further post processing."

is also without support.

On page 8 of the Office Action, the Examiner argues that:

"It would have been obvious to one of ordinary skill in the art to modify Beaman and Sterett in view of Murnick to use multiple beams or defocus the beam to reduce stress."

However, the Examiner provide no evidence that the use of multiple beams or the use of defocusing beams would reduce stress, at least from the teachings of *the prior art*. The same holds true of the argument that:

"It would have been obvious to one of ordinary skill in the art to modify Beaman and Sterett in view of Murnick to use the same laser to both deposit the material and to reduce the stress to reduced the required number of lasers."

On page 9, of the Office Action, concedes that:

"Murnick while teaching the use of powdered material during material deposition does not specifically show its."

but argues that:

"It would have been obvious to one of ordinary skill in the art to modify Murnick to use powdered material to repair an object and give the proper appearance in view of the teaching of Murnick."

This is of no practical use, and makes little sense with regard to §103 of the Statute. In particular, what does "proper appearance" mean?

Based upon the foregoing amendments and comments, Applicant believes the instant application is in condition for allowance. Questions regarding this application may be directed to the undersigned attorney by telephone, facsimile or electronic mail.

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